
Hardware Reference

ActivePRO POD NEC 78K0/Fx2

Ordering code	IC30602
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Hardware Reference

ActivePRO POD General Notes

ActivePRO PODs can be used connected to the iC3000 Emulator through the ActivePRO interface.

A green LED is lit when the ActivePRO POD is powered on.

PIN1 location on every component is also marked on the circuit board with a square block (PIN 1 pin is soldered a square block, other pins have a round pin).

AUX Inputs

The POD has a special interface for an additional ActivePRO AUX card (IC30338), which provides 16 AUX auxiliary inputs. Signals connected to these inputs are either sampled with the trace cycle or on the signal edge change. Inputs are divided into two identical blocks with 8 inputs each. Every block has an adjustable input threshold from 0 to 3V. Inputs are 5V tolerant. For more information see the hardware reference for the ActivePRO AUX Card.

Trigger Output

A trigger output is available on the module. For instance an external logic analyzer can be connected to a coax SMA connector, which provides a 3.3V pulse on a trace trigger event.

Final Target Application Test

After the application is being more or less debugged and final application test is performed, it is recommended to remove all breakpoints and to close all debug windows (memory, SFR, watch...) to eliminate any possible influence of the emulator on the CPU execution. There were cases where the target application has been behaving differently with the target CPU inserted or the POD connected. If the debugger is configured to update some debug windows in real-time, the user may not be aware of that the CPU execution may be slightly disturbed. However, when the monitor access type is configured to update debug windows while the CPU is running, the CPU execution is disturbed significantly, depending on the necessary number of memory accesses to update opened debug windows.

There are cases when internal peripheral device requires read access of the particular register during the device configuration. The user has had SFR window opened and the necessary read access was actually performed by the debugger and not by the application as it would be correct. Therefore, the application was working fine with the emulator, but a standalone application didn't work correctly, as the peripheral device was not configured properly.

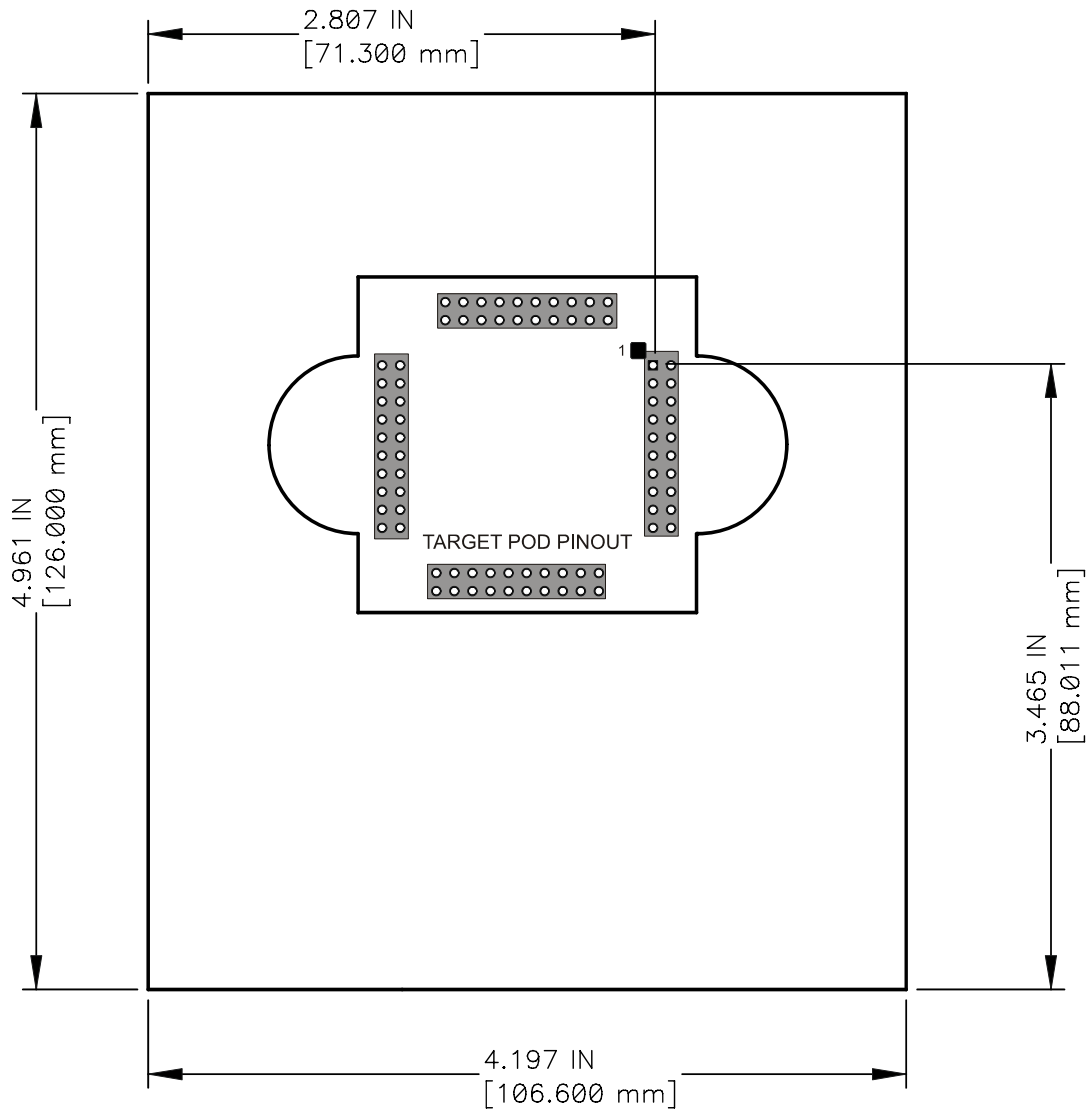
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ActivePRO POD NEC 78K0/Fx2

Ordering code	IC30602
Max POD ECLK Speed (MHz)	16
Trace Depth	512k Frames
Time Stamp Resolution	16.7ns
Time Reach	Unlimited

Emulated CPUs
μPD78F0881
μPD78F0882
μPD78F0883
μPD78F0884
μPD78F0885
μPD78F0886
μPD78F0887
μPD78F0888
μPD78F0889
μPD78F0890
μPD78F0891
μPD78F0892
μPD78F0893

For the latest list of emulated CPUs please contact your local sales representative.



NEC 78K0/Fx2 bottom POD view

Electrical differences

A special bondout CPU is used on the POD for emulation, therefore there are no special electrical differences between the real CPU and the POD, however when operating close to electrical limits, problems can occur because of different line lengths. Try to withdraw from voltage limits.

A 1k pull-up is present on the Target Reset line.

Jumper Settings

All jumpers on the POD are reserved for factory usage and should not be moved.

Emulation notes

The bondout on the POD needs special initialization. With this initialization the 'SFR mapping' is performed which selects emulated peripherals. This initialization is done by the software, therefore be sure that the correct CPU is selected in the software. Otherwise, some peripherals are disabled and cannot be emulated.

Real-Time Watches

Real time watches are supported using shadow memory when address is below 0xFE00.

Real-time watches are not available in SFR and high-speed RAM area due to bondout restrictions. Equally, accesses to high-speed RAM and SFRs are not visible in the trace.

External Memory Limitations

CPU external memory cannot be written nor read using debug memory window due to bondout limitations.

Target Adapters

iSYSTEM offers various adapter solutions for this POD. Please refer to the adapter documentation for more details.

POD Target Layout

Target POD pinout is T_QFP80.

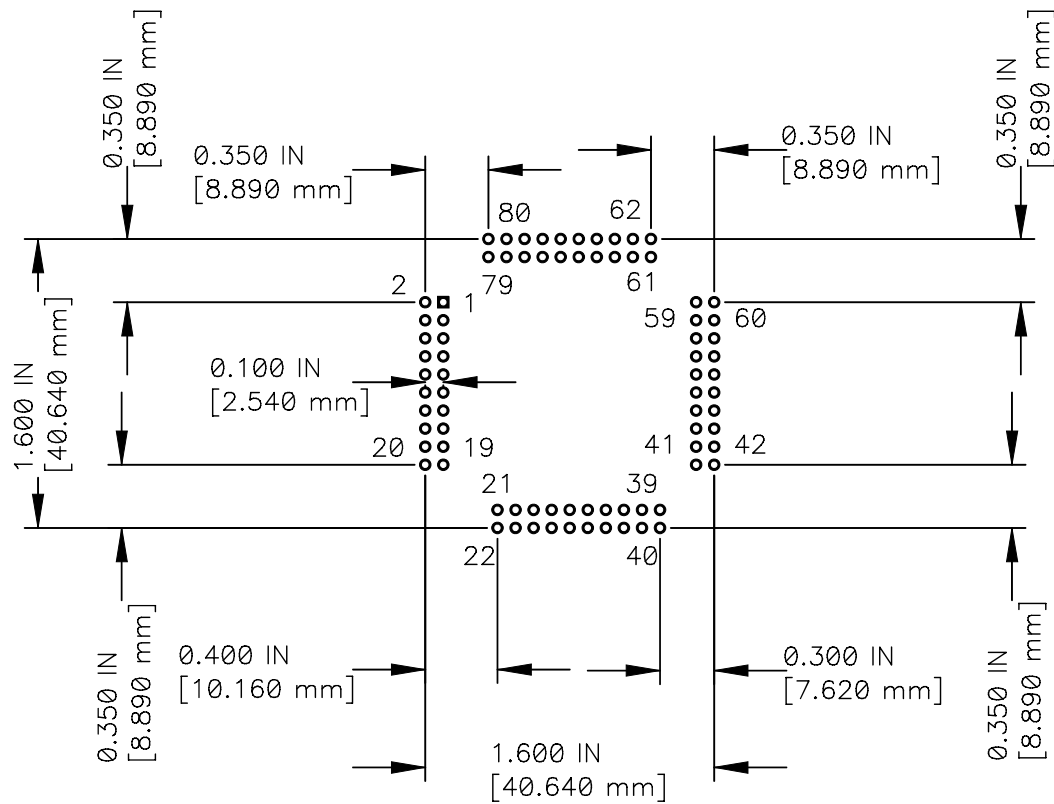
80	78	76	74	72	70	68	66	64	62
79	77	75	73	71	69	67	65	63	61

2	1
4	3
6	5
8	7
10	9
12	11
14	13
16	15
18	17
20	19

59	60
57	58
55	56
53	54
51	52
49	50
47	48
45	46
43	44
41	42

21	23	25	27	29	31	33	35	37	39
22	24	26	28	30	32	34	36	38	40

T_QFP80 – Top POD view



T_QFP80 – Dimensions

An adapter for T_QFP44 target POD pinout is included in the package.

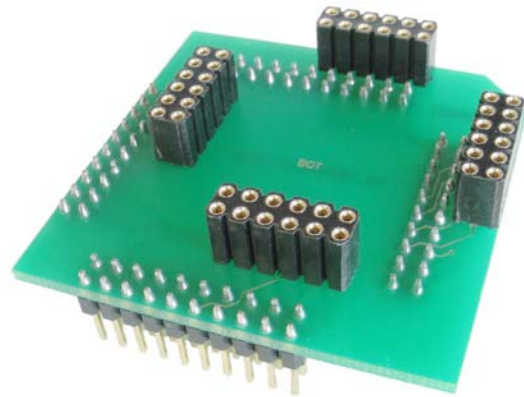
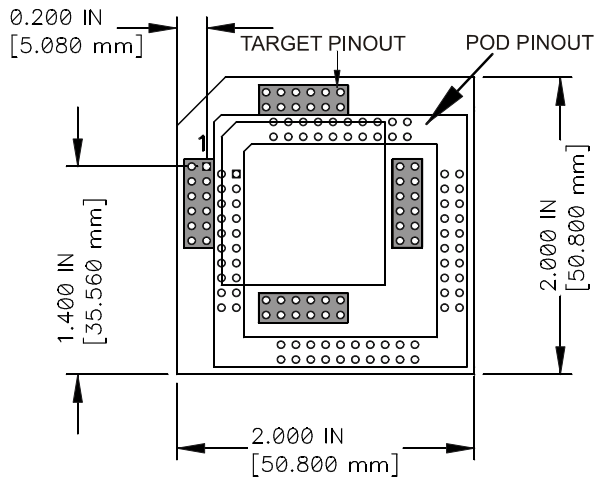
X	43	41	39	37	35
44	42	40	38	36	34

2	1
4	3
6	5
8	7
10	9
X	11

33	X
31	32
29	30
27	28
25	26
23	24

12	14	16	18	20	22
13	15	17	19	21	X

T_QFP44 – Top POD View



T_QFP44 adapter – Dimensions and picture

An adapter for T_QFP48 target POD pinout is included in the package.

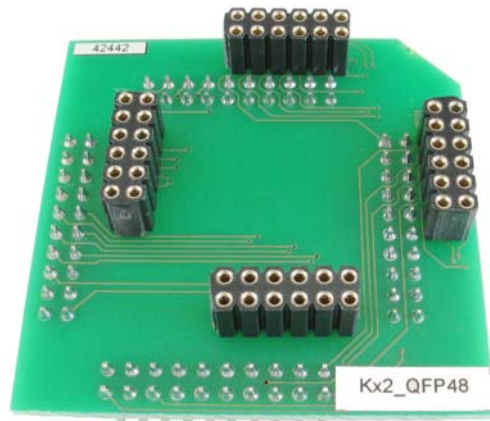
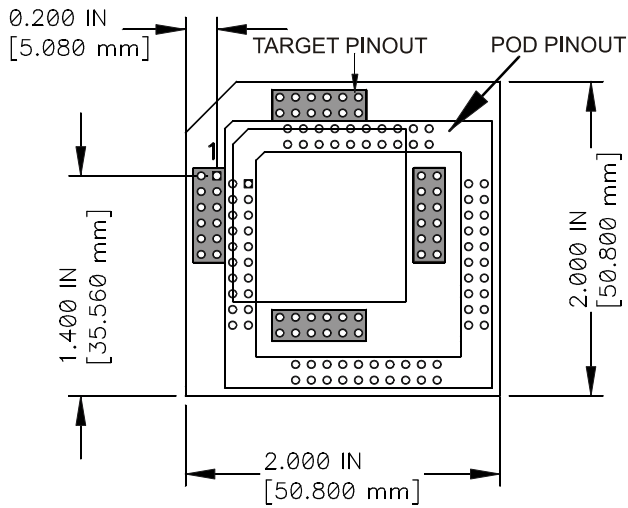
48	46	44	42	40	38
47	45	43	41	39	37

2	1
4	3
6	5
8	7
10	9
12	11

35	36
33	34
31	32
29	30
27	28
25	26

13	15	17	19	21	23
14	16	18	20	22	24

T_QFP48 – Top POD View



T_QFP48 adapter – Dimensions and picture

An adapter for T_QFP64 target POD pinout is included in the package.

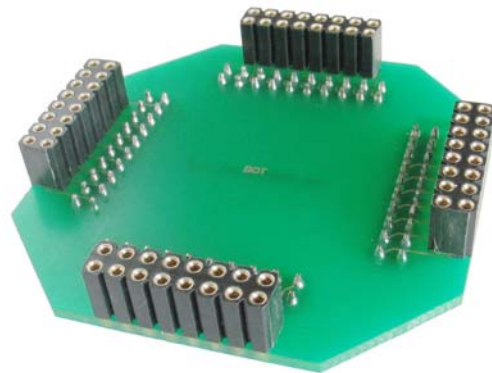
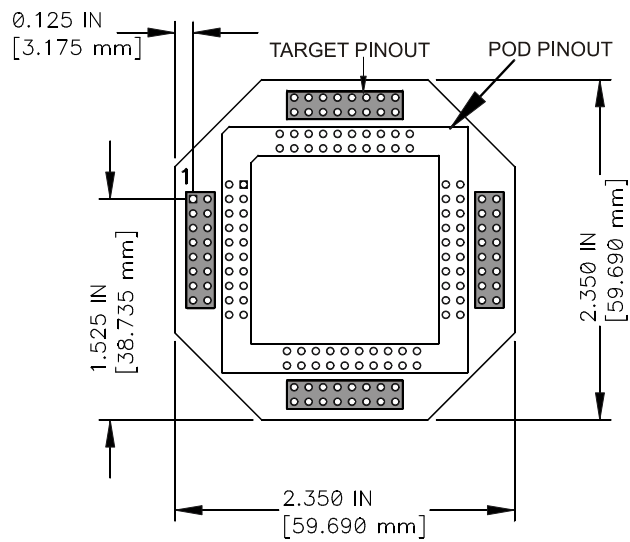
63	61	59	57	55	53	51	49
64	62	60	58	56	54	52	50

1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16

48	47
46	45
44	43
42	41
40	39
38	37
36	35
34	33

18	20	22	24	26	28	30	32
17	19	21	23	25	27	29	31

T_QFP64 – Top POD View



T_QFP64 adapter – Dimensions and picture

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